



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

March 17, 2015

John Todhunter  
Registration Agent  
Alex C. Fergusson, Inc.  
5000 Letterkenny Road  
Chambersburg, PA 17201

Subject: Label Notification per PRN 98-10 – Add specific hard-non-porous, non-food use  
Product Name: Per-Ox Extreme  
EPA Registration Number: 833-5  
Application Date: February 20, 2015  
Decision Number: 502415

Dear Mr. Todhunter:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Antimicrobials Division has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

If you have any questions, you may contact Seiichi Murasaki at [murasaki.seiichi@epa.gov](mailto:murasaki.seiichi@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "SEIICHI MURASAKI" followed by a flourish and the initials "for".

Elizabeth Watkins  
Acting Product Manager 33  
Regulatory Management Branch I  
Antimicrobials Division (7510P)  
Office of Pesticide Programs

# PER-OX EXTREME

**For Industrial Use Only**  
**KEEP OUT OF REACH OF CHILDREN**  
**DANGER**

For biofouling and slime control in:

- Recirculating process and cooling water systems

For Institutional/Industrial sanitizing of previously cleaned non-porous food contact surfaces in:

- Dairies, Wineries, Breweries and Beverage Plants
- Meat and Poultry Processing/Packaging Plants
- Milk and Dairy Products Processing/Packing Plants
- Seafood and Produce Processing/Packing Plants
- Food Processing/Packing Plants
- Egg Processing/Packing Equipment Surfaces
- Eating Establishments

For Institutional / Industrial sanitizing of previously cleaned, hard, non-porous food contact surfaces such as:

- Eating, Drinking, and Food Preparation Utensils
- Tableware
- Plastic, Glass and Metal Bottles (rinse)

For use as a sanitizer on food contact surfaces in contact with products labeled as organic.

For use as a coarse spray for surfaces to be sanitized.

For sanitizing surfaces such as packing house conveyors and harvesting equipment and containers. It is effective against plant pathogens such as *Xanthomonas campestris* (axonopodis), *pathovarscitrumelo* (citrus canker surrogate).

For sanitizing hatching eggs.

For use as a dip, spray, wash or fog to control the growth of non-public health microorganisms that may cause decay and/or spoilage on raw, post-harvest and fresh cut fruits and vegetables.

For use in agricultural water and irrigation systems.

Active Ingredients: Peroxyacetic Acid .....	15.0%
Hydrogen Peroxide.....	10.0%
Inert Ingredients: .....	<u>75.0%</u>
TOTAL .....	100.00%

## First Aid

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

### If in Eyes

Hold eye open and rinse slowly and gently with water for 15-20 minutes.  
Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.  
Call a poison control center or doctor for treatment advice.

### If on Skin or Clothing

Take off contaminated clothing.  
Rinse skin immediately with plenty of water for 15-20 minutes.  
Call a poison control center or doctor for treatment advice

### If Inhaled

Move person to fresh air.  
If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.  
Call a poison control center or doctor for further treatment advice.

### If Swallowed

Call a poison control center or doctor immediately for treatment advice.  
Have person sip a glass of water if able to swallow.  
Do not induce vomiting unless told to do so by a poison control center or doctor.  
Do not give anything by mouth to an unconscious person.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

**EPA Registration No. 833-5**  
**EPA Est. No. 833-PA-1**

## NOTIFICATION

833-5

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

03/17/2015

## Precautionary Statements

### Hazards to Humans and Domestic Animals

**DANGER** -Corrosive. Causes eye and skin damage. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and rubber gloves, long sleeves, and long pants when handling. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Do not breathe vapor or spray mist. Do not enter an enclosed area without proper respiratory protection.

**Physical or Chemical Hazards**- Strong oxidizing agent. Mix only with water. Not combustible but at temperatures exceeding 156°F, decomposition occurs releasing oxygen. The oxygen released could initiate or promote combustion of other materials.

**Environmental Hazards** - This pesticide is toxic to birds, mammals, fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluents containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

Any solution released from the system should be diluted with water and tested for residuals to ensure that there is less than 3 ppm peroxygen remaining.

## Storage and Disposal

Do Not Contaminate Water, Food, or Feed by Storage and Disposal.

### Pesticide Storage

**NEVER RETURN PER-OX EXTREME TO THE ORIGINAL CONTAINER AFTER IT HAS BEEN REMOVED.** Avoid all contaminants, especially dirt, caustic, reducing agents, and metals. Contamination and impurities will reduce shelf life and can induce decomposition. In case of a decomposition, isolate container, douse container with cool water and dilute with large volumes of water.

Avoid damage to containers. Keep containers closed at all times when not in use. Keep containers out of direct sunlight. To maintain product quality, store at temperatures below 86°F. Do not store on wooden pallets.

### Procedure for Leak or Spill

Stop leaks if this can be done without risk. Shut off ignition sources; no flames, smoking, flares, or spark-producing tools. Keep combustible and organic materials away. Flush spilled material with large quantities of water. Undiluted material should not enter confined spaces.

### Disposal

#### Pesticide Disposal

If material has been spilled, an acceptable method of disposal is to dilute with at least 20 volumes of water followed by discharge into suitable treatment system in accordance with all local, state and Federal environmental laws, rules, regulations, standards, and other requirements. Because acceptable methods of disposal may vary by location, regulatory agencies should be contacted prior to disposal.

Product to be discarded should be disposed of as hazardous waste after contacting the appropriate local, state, or Federal agency to determine proper procedures.

### Container Disposal

**Nonrefillable containers greater than or equal to five gallons.** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available.

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty rinsate into application equipment or mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Empty drums are not returnable unless special arrangements have been made. Dispose of drums in accordance with local, state, and Federal regulations.

---

## Directions For Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

### Control of Slime Forming Bacteria in Recirculating Cooling Water Systems (Cooling Towers, Evaporative Condensers) and Non-Food Contact Water Systems (Pulp and Paper Mill Water Systems)

For use in treating raw (make-up) and process waters, closed and opened loop systems such as heat exchangers, wet scrubbers, cooling towers, evaporative condensers and recirculating industrial process water, such as pulp and paper mill water systems.

1. Severely fouled systems should be cleaned before adding the product solution. Refer to the system operation manual for directions to clean severely fouled systems. The product should be added directly to the system and not mixed with any other chemicals or additives. Other chemicals should be added separately. Contamination with other chemicals could result in product decomposition.
2. Add the product solution at a point in the system where uniform mixing and even distribution will occur.
3. **Intermittent feed method:** When the system is noticeably fouled, apply 0.8-1.2 lb (10 to 16 fluid ounces) per 1000 gallons of water in the system. When microbial control is evident, add 1.0 lb (14 fluid ounces) of the solution per 1000 gallons of water in the system every day, or as needed, to maintain control. The daily dose rate should vary depending upon the severity of the biofouling.
4. **Continuous feed method:** Initial dose - When the system is just noticeably fouled, apply 0.8 to 1.2 lb (10 to 16 fluid ounces) per 1000 gallons of water in the system. When microbial control is achieved, start adding continuously at a rate of 1.0 lb (14 fluid ounces) per 1000 gallons of water (provides 17 ppm peroxyacetic acid and 12 ppm hydrogen peroxide). Then reduce the rate of addition to a level sufficient to maintain control. The dose rate may have to be adjusted to account for losses due to blowdown and evaporation. Add 1.4 fluid ounces of product for every 100 gals of make-up water.

### Food Processing Equipment

The product may be used to achieve commercial sterility of non-porous food manufacturing, packaging and filling equipment. May be used on manufacturing, filling (including rotary fillers) and packaging equipment.

1. Remove gross soil particles from equipment surfaces.
2. Clean surfaces thoroughly.
3. Rinse thoroughly with potable water.

4. Apply a solution containing 4000 ppm (0.4%) peroxyacetic acid at a minimum temperature of 65°C.
5. Use immersion, coarse spray or circulation techniques to apply. Automated application by fine mist or vapor deposition may be used within enclosed spaces.
6. Allow contact time of at least 20 seconds.
7. Allow to drain dry.
8. A final rinse with sterile water is optional.

This product may be used on equipment used in aseptic packaging as an antimicrobial rinse in food processing operation that has a scheduled process accepted by FDA. The aseptic food processing operation must comply with all applicable FDA regulations, including but not limited to 21 CFR parts 108, 110, 113, and/or 114. Use of an aseptic food processing operation includes treating required for the process validation.

### Sanitizing of Hard, Non-porous Food Contact Surfaces

For use in circulation cleaning and institutional/industrial sanitizing of previously cleaned hard, non-porous food-contact surfaces and equipment, such as food preparation surfaces, pipelines, tanks, vats, filters, evaporators, pasteurizers, and aseptic equipment in

- Dairies, Wineries, Breweries and Beverage Plants
- Meat and Poultry Processing / Packaging Plants
- Milk and Dairy Products Processing / Packing Plants
- Seafood and Produce Processing / Packing Plants
- Food Processing / Packing Plants
- Egg Processing / Packing Equipment Surfaces
- Eating Establishments
- Final Sanitizing Bottle Rinse

PER-OX EXTREME is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella typhimurium*.

Clean equipment immediately after use.

1. Remove gross particulate matter with a warm water flush.
2. Wash equipment with detergent or cleaning solution.
3. Rinse equipment with potable water.
4. Prepare product solution by adding 0.31 to 0.73 fluid ounces to 5 gallons potable water. This provides 85 to 200 ppm peroxyacetic acid and 57 to 133 ppm hydrogen peroxide.
5. If sanitizing against *Listeria monocytogenes*, use 0.50 to 0.73 fluid ounces of product in 5 gallons potable water. This provides 137 to 200 ppm peroxyacetic acid and 92 to 133 ppm hydrogen peroxide.
6. Fill closed systems with diluted sanitizer solution and allow a contact time of one (1) minute.
7. For open or not completely closed systems, use a coarse spray, mop/wipe or flood technique to apply the solution to the surface and allow a contact time of one (1) minute.
8. Allow surface to drain thoroughly before resuming operation.

### Eating Establishment Sanitizing

PER-OX EXTREME is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella typhimurium*.

1. Scrape/prewash plates, utensils, cups, glasses, etc. whenever possible.
2. Wash all items with a detergent.
3. Rinse thoroughly with potable water.
4. Prepare product solution by adding 0.31 to 0.73 fluid ounces to 5 gallons of potable water. This provides 85 to 200 ppm peroxyacetic acid and 57 to 133 ppm hydrogen peroxide.
5. Immerse all items for at least 1 minute or for a longer contact time if specified by the local governing sanitizing code.
6. If sanitizing against *Listeria monocytogenes*, use 0.50 to 0.73 fluid ounces of product in 5 gallons potable water. This provides 137 to 200 ppm peroxyacetic acid and 92 to 133 ppm hydrogen peroxide.
7. Place all sanitized items on a rack or drainboard to drain adequately. Air dry if items will not be reused immediately.

### Sanitizing Tableware

For sanitizing tableware in low to ambient temperature warewashing machines, inject the diluted product solution (0.31 to 0.73 fluid ounces of the product to 5 gallons of potable water) into the final rinse water. This will provide 85 to 200 ppm of peroxyacetic acid and 57 to 133 ppm hydrogen peroxide. Allow treated materials to drain adequately. Air dry if items will not be reused immediately.

### Final Sanitizing Bottle Rinse

May be used as a final sanitizing rinse for plastic, glass or metal returnable and non-returnable bottles/ cans.

1. Wash bottles with detergent or cleaning solution and rinse with potable water.
2. Rinse bottles with a solution prepared by mixing 0.31 to 0.73 fluid ounces of product to 5 gallons of potable water. This provides 85 to 200 ppm of peroxyacetic acid and 57 to 133 ppm hydrogen peroxide. Allow to drain dry.

### Sanitization of Hatching Eggs

1. Prepare a dilute solution prepared by mixing 0.31 to 0.73 fluid ounces of product to 5 gallons of potable water. This provides 85 to 200 ppm of peroxyacetic acid and 57 to 133 ppm hydrogen peroxide.
2. Apply dilute solution as eggs are gathered or prior to setting, as a coarse spray or flood so as to lightly wet all egg shell surfaces.
3. Allow to drain dry.

### Sanitization of Conveyors, Peelers, Slicers and Saws for Meat, Poultry, Seafood, Fruits and Vegetables

PER-OX EXTREME is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella typhimurium*.

For use in the static or continuous washing, rinsing and sanitizing of conveyor equipment, peelers, collators, slicers, saws, etc.

1. Remove all products from equipment if during treatment the sanitizer will directly contact the items.
2. Prepare sanitizer solution by adding 0.31 to 0.73 fluid ounces of product to 5 gallons of potable water. This provides 85 to 200 ppm of peroxyacetic acid and 57 to 133 ppm hydrogen peroxide.
3. Apply sanitizer solution to the return portion of the conveyor or to the equipment by using a coarse spray or other means of wetting the surfaces. Control the volume of solution so as to permit maximum drainage and to prevent puddles. The conveyor may still be damp when food contact occurs.
4. If sanitizing against *Listeria monocytogenes*, use 0.50 to 0.73 fluid ounces of product in 5 gallons potable water. This provides 137 to 200 ppm peroxyacetic acid and 92 to 133 ppm hydrogen peroxide.
5. Allow a minimum contact time of 1 minute then allow equipment to drain adequately before reusing, a dry surface is not required.

### Surfaces Treated to Control the Spread of Citrus Canker

Can be used to control the spread of citrus canker between inanimate surfaces to plants. This product is for sanitizing surfaces such as packinghouse conveyors and harvesting equipment and containers. This product is not for treatment of infected plants.

### Antimicrobial Rinse of Pre-Cleaned or New Returnable or Non-Returnable Containers

To reduce the number of nonpathogenic beverage spoilage organisms such as *Aspergillusversicolor*, *Byssoschlamysfulva*, *Pediococcusdamnosus*, *Lactobacillus buchneri*, and *Saccharomyces cerevisiae*.

1. Use up to 10 fluid ounces of product per 5 gallons of potable water. This provides 2700 ppm of peroxyacetic acid and 1800 ppm hydrogen peroxide.
2. After applying the antimicrobial rinse, allow containers to drain thoroughly.
3. Optional rinse with sterile or potable water.

### For Treatment of Raw, Unprocessed Fruit and Vegetable Surfaces

Can be applied as a dip or spray to control the growth of non-public health microorganisms such as *Xanthomonascampestris (axonopodis)*, *pathovarscitrumelo* (citrus canker surrogate) and *Aspergillusversicolor*, blue mold (*Penicillium* species), green mold (*Penicillium* species) and stem-end rot (*Geotrichum*) that may cause decay and/or spoilage on raw, post-harvest fruits and vegetables during the washing process. This product can be applied during physical cleaning processes, including at the roller spreader, washer manifold, dip tank, on the brushes or elsewhere in the washing process prior to, simultaneously with, or after detergent wash.

1. Prepare treatment solution by adding 1.0 fluid ounce per 16 gallons of potable water. This will provide 85 ppm of peroxyacetic acid and 57 ppm hydrogen peroxide.
2. Apply the diluted sanitizer solution using a coarse spray directed at the fruits or vegetables, or by soaking the fruits and vegetables in the solution. Allow a contact time of at least 45 seconds.
3. The treated produce can be drain dried without a potable water rinse.
4. Do not reuse solution after treatment.

Can be used on the following raw and post-harvest fruits and vegetables

- Root and tube vegetables such as carrots and potatoes
- Bulb vegetables such as onions, garlic and shallots
- Leafy vegetables such as broccoli, cabbage and cauliflower
- Legumes such as beans, peas and lentils
- Fruiting vegetables such as peppers, tomato and eggplant
- Cucurbits such as cucumbers, melons, squash and pumpkins
- Citrus fruits such as oranges, lemons, limes and grapefruit
- Pome fruits, apples and pears
- Stone fruits such as cherries, peaches, nectarines and plums
- Small fruits and berries: blackberries, blueberries red and black raspberries
- Tree nuts such as almond, brazil, filbert, cashew and pecan
- Cereal grains such as corn, barley, oats, rice, and wheat
- Herbs and spices such as basil, chives, coriander and dill
- Miscellaneous fruits and vegetables such as asparagus, avocado, artichoke, banana, cranberry, fig, grapes, kiwifruit, mango, mushrooms, okra, papaya, peanut, pineapple, strawberry and water chestnut.

### Agricultural and Horticultural Uses

A Restricted-Entry-Interval of zero (0) hours is required for this product in agricultural and horticultural uses. This product should not be mixed or combined with any pesticides or fertilizers. Upon soil contact, the diluted product decomposes rapidly to oxygen, carbon dioxide, and water. This product may be harmful to fish if exposed on a continuous basis at concentrations greater than 1 ppm of active peracetic acid. Meter this product into pressurized pipes using a plastic or stainless steel injection/backflow device installed upstream from the equipment to ensure thorough mixing prior to application. For open bodies of water, allow adequate mixing prior to product flow entering any body of water. If open pouring of this product is required, pour product close to the surface of the water as possible to reduce odor and exposure.

### Treatment of Agricultural and Irrigation Water Systems

Use to control sulfides, odor, slime and algae in sand filters, humidification systems, storage tanks, ponds, reservoirs, canals. Apply at 15 to 75 fluid ounces per 10,000 gallons of water. This provides 2 ppm to 10 ppm peroxyacetic acid and 1.3 – 6.7 ppm hydrogen peroxide. Repeat dose as necessary to maintain control. For prevention of algae, some systems may require continuous low level dosing during warm, sunny periods (2 ppm to 5 ppm peroxyacetic acid).

### Sanitizing Hard, Non-Porous, Non-Edible Outside Surfaces of Airtight, Sealed Packages Containing Food or Non-Food Products

PER-OX EXTREME may be used as a final sanitizing rinse for hard, non-porous non-edible outside surfaces of airtight, sealed packages containing food or non-food products at a dilution of 0.31-0.73 fluid ounces per 5 gallons of potable water. This provides 85-200 ppm peroxyacetic acid and 57 – 133 ppm hydrogen peroxide. The treated hard, non-porous non-edible packaging, such as food wraps and meat casings must be removed and discarded before packaged food products are further processed or consumed. All surfaces must be exposed to the sanitizing solution for a period of not less than 1 minute. Drain thoroughly. No rinse necessary. This is not to be used on porous surfaces.

Manufactured by: Alex C. Fergusson, LLC.

5121 Coffey Avenue

Chambersburg, PA 17201

Tel. 800-345-1329

24 Hr Emergency Chemtrec No. (CCN837): 800-424-9300